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- 2 An image enhancement method using face detection algorithms, comprising: 1.
- 3 automatically detecting human faces in an image using face detection algorithms;
- automatically locating the human faces in the image; and 4
- 5 automatically enhancing an appearance of the image based on the human faces in the
- 6 image.
- The method of claim 1, wherein the enhancing step includes automatically enhancing 2. 7
- 8 lightness levels of the human faces.
- 9 3. The method of claim 1, wherein the enhancing step includes automatically enhancing
- 10 contrast levels of the human faces.
- The method of claim 1, wherein the enhancing step includes automatically enhancing
- 11 12 13 13 14 14 15 16 16 17 color levels of the human faces.
 - 5. The method of claim 1, wherein the locating step includes automatically locating eyes in
 - the human faces.
 - 6. The method of claim 5, wherein the enhancing step comprises:
 - automatically determining if there exists a red eye artifact; and
 - reducing or removing the red eye artifact from the human faces.
 - 7. The method of claim 1, wherein the enhancing step includes using a mapping technique
- ☐ 18 ☐ 19 to produce the image with target levels for a mean value or a variation value.
 - 20 8. An apparatus for enhancing an image using face detection algorithms, comprising:
 - 21 a module for automatically detecting human faces in an image using face detection
 - 22 algorithms;
 - 23 a module for automatically locating the human faces in the image; and
 - 24 a module for automatically enhancing an appearance of the image based on the human
 - 25 faces in the image.
 - 26 9. The apparatus of claim 8, wherein the image is a digital image.
 - 27 10. The apparatus of claim 8, wherein the module for enhancing the appearances of the image
 - 28 includes a module for automatically enhancing lightness levels of the human faces.
 - 29 The apparatus of claim 8, wherein the module for enhancing the appearances of the image
 - 30 includes a module for automatically enhancing contrast levels of the human faces.

9 HP No. 10006299-1

- The apparatus of claim 8, wherein the module for enhancing the appearances of the image 12. 1
- includes a module for automatically enhancing color levels of the human faces. 2
- 3 13. The apparatus of claim 8, wherein the module for locating the human faces includes a
- module for automatically locating eyes in the human faces. 4
- 5 14. The apparatus of claim 13, wherein the module for enhancing the appearances of the
- 6 image comprises:
- 7 a module for automatically determining if there exists a red eye artifact; and
- 8 a module for reducing or removing the red eye artifact from the human faces.
- 9 15. A computer readable medium comprising instructions for image enhancement using face
- 10 detection, the instructions comprising:
 - automatically detecting human faces in an image using face detection algorithms;
 - automatically locating the human faces in the image; and
 - automatically enhancing an appearance of the image based on the human faces in the
 - image.

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- 16. The computer readable medium of claim 15, wherein the instructions for enhancing the
- appearance of the image include automatically enhancing lightness levels of the human faces.
- <u>1</u>6 <u>1</u>7 17. The computer readable medium of claim 15, wherein the instructions for enhancing the **∔**8 appearance of the image include automatically enhancing contrast levels of the human faces.
- **1**9 18. The computer readable medium of claim 15, wherein the instructions for enhancing the
- 20 appearance of the image includes automatically enhancing color levels of the human faces.
- 21 19. The computer readable medium of claim 15, wherein the instructions for locating the
- 22 human faces include automatically locating eyes in the human faces.
- 23 The computer readable medium of claim 19, wherein the instructions for enhancing the 20.
- 24 appearance of the image comprises:
- 25 automatically determining if there exists a red eye artifact; and
- 26 reducing or removing the red eye artifact of the human faces.

10 HP No. 10006299-1